

REMARKS

Claims 1 to 5 and 7 to 9 remain pending in the present application.

Telephone Interview

Applicant thanks the Examiner for the telephone interview on February 27, 2006. During the telephone interview, Applicant's attorney explained the elements of claims 1 and 3 in view of Figs. 20A to 21 and 23 to 25. Specifically, Applicant's attorney explained that the recited sleeve has a single bore with an inner surface of a constant inner diameter. Furthermore, Applicant's attorney explained that the inner surface of the bore receives and contacts outer surfaces of (1) the recited alignment feature on the recited optoelectronic package and (2) a ferrule of a fiber optic connector. In view of this, the Examiner said she would do a new search to determine if the pending claims are allowable. On February 28, 2006, the Examiner instructed Applicant's attorney to respond to the outstanding office action as she found U.S. Patent No. 5,631,988 ("Swirhun et al.") to be relevant to the pending claims.

Claim Objections

The Examiner objected to claim 2 under 37 C.F.R. § 1.75(c) for failing to further limit the subject matter of a previous claim. Specifically, the Examiner found that "the assembly is a fiber optic connector with or without the limitation of claim 2." Applicant respectfully traverses.

The recited "optical assembly" is simply the sum of the recited elements. This can be seen in Fig. 21, where an exemplary optical assembly is illustrated as a combination of an optoelectronic package 306, a sleeve 308, and a fiber optic connector 307. In claim 1, only the optoelectronic package 306 and sleeve 308 are recited. While claim 1 mentions a ferrule of a fiber optic connector, it is only used to describe that the recited sleeve receives and contacts the ferrule.

§103 Rejections

The Examiner rejected claims 1 to 5 and 7 to 9 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,354,747 ("Irie et al.") in view of U.S. Patent No. 5,195,156 ("Freeman et al.").

Claim 1

Addressing claim 1, the Examiner stated:

The amended claim 1 further recites

--a sleeve defining a single bore with an inner surface having a constant diameter--

Freeman's connector element 200 has three inner diameters that are all constant. Due to the open-ended transitional recitation, Freeman's element 200 meets the limitation cited above. The next limitation in continuance recites

--a constant inner diameter for receiving and contacting outer surfaces of the alignment feature--

The alignment feature is in how the pieces are fitted together along the optical axis and in this case the feature is how element 105 fits into element 200. Once fitted, the outer surface of the sleeve 105 and the surface that is perpendicular to the sleeve are in contact with the constant diameter 2 of element 200.

November 30, 2005 Office Action, pp. 4 and 5 (emphasis added). Applicant respectfully traverses.

As discussed during the telephone interview, claim 1 recites that a sleeve a single bore having an inner surface with a constant inner diameter. Furthermore, claim 1 recites that the inner surface receives and contacts the outer surfaces of (1) an alignment feature on an optoelectronic package and (2) a ferrule of a fiber optic connector. On the other hand, Freeman et al. discloses an insert member 200 having (1) a bore 201 for receiving an emitter 105 and (2) a bore 203 for receiving a ferrule 303. Freeman et al., col. 2, line 66 to col. 3, line 1. Thus, Freeman et al. does not disclose a single bore receiving and contacting outer surfaces of (1) an alignment feature on an optoelectronic package and (2) a ferrule of a fiber optic connector as recited in claim 1.

Claims 2, 3, 5 and 7 to 9

Claims 2, 3, 5, and 7 to 9 depend from claim 1 and are patentable over the combination of Irie et al. and Freeman et al. for at least the same reasons as claim 1.

Claim 4

The Examiner rejected claim 4 under 35 U.S.C. § 103(a) as being unpatentable over Irie et al. in view of U.S. Patent No. 6,652,158 ("Bartur et al."). Claim 4 depends from claim 1 and is patentable over the combination of Irie et al. and Bartur et al. for at least the same reasons as claim 1.

U.S. Patent No. 5,631,988 ("Swirhun et al.")

The Examiner may wish to cite Swirhun et al. against claim 1 in the next office action. In anticipation, Applicant notes the differences between the three embodiments of Swirhun et al. and claim 1.

The first embodiment of Swirhun et al. is illustrated in Figs. 1a and 1b. An optical fiber connector 150 is mounted on an optoelectronic board 100. For aligning the two elements, connector 150 has guide pins 140 that fit into alignment holes 120 on board 100. Board 100 has an optoelectronic device array 110 that is aligned with optical fibers 135 of connector 150.

As described, the first embodiment of Swirhun et al. fails to disclose many elements of claim 1. For example, there are no elements in the first embodiment that correspond to (1) the recited alignment feature on the optoelectronic package and (2) the recited sleeve for receiving the alignment feature and a ferrule of a fiber optic connector.

The second embodiment of Swirhun et al. is illustrated in Figs. 2a and 2b. Fiber optical connector 150 is mounted on an optoelectronic board 101. For aligning the two elements, connector 150 has guide pins 140 that fit into alignment holes 119 on board 101. Board 101 has an optoelectronic device array 110 that is aligned with optical fibers 135 of connector 150. Optoelectronic device array 110 is formed on a semiconductor chip 105 with metal pads 92 on a bottom surface 95. Semiconductor chip 105 is fixed by solder 94 onto metal pads 93 atop dielectric substrate 90 of optoelectronic board 101. When heated, the surface tension of solder 94 aligns semiconductor chip 105 according to the patterns formed by the metal pads.

Similar to the first embodiment, the second embodiment of Swirhun et al. fails to disclose elements that correspond to (1) the recited alignment feature on the optoelectronic package and (2) the recited sleeve for receiving the alignment feature and a ferrule of a fiber optic connector.

The third embodiment of Swirhun et al. is illustrated in Figs. 5a, 5b, and 5c. An optical fiber 500 has a core 505 surrounded by a cladding layer 510. At a coupling end 515 of fiber 500, core 505 is recessed to form a rim 516. A VCSEL laser is formed with a protruding mesa 555. To mount fiber 500 onto the VCSEL laser, rim 516 is fit onto mesa 555 and bonded by epoxy 570.

Similar to the first and the second embodiments, the third embodiment of Swirhun et al. fails to disclose elements that correspond to (1) the recited alignment feature on the optoelectronic package and (2) the recited sleeve for receiving the alignment feature and a ferrule of a fiber optic

connector. Applicant note that Swirhun et al. does not disclose the VCSEL laser as being in a package. Furthermore, as its name suggests, fiber 500 is simply an optical fiber and not a sleeve. Specifically, although fiber 500 defines a rim 516 that receives mesa 555 of the VCSEL laser, fiber 500 does not have a bore that receives both mesa 555 and a ferrule of a fiber optic connector.

Accordingly, claim 1 is patentable over Swirhun et al. Claims 2 to 5 and 7 to 9 depend from claim 1 and are patentable over Swirhun et al. for at least the same reasons as claim 1.

Summary

In summary, claims 1 to 5 and 7 to 9 remain pending in the above-identified application. For the above reasons, Applicant respectfully requests allowance of claims 1 to 5 and 7 to 9. Should the Examiner have any questions, please call the undersigned at (408) 382-0480x206.

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Respectfully submitted,



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